



## Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).

primary conditioning factors are further modified by changes in the physiological processes incident to gestation. While these points just insisted upon must be borne in mind in working out a final interpretation of the method of evolution of the various forms of the placenta, the quadrate placenta of the red squirrel appears to be of great significance, as bridging the gap between the discoidal and zonary forms; it plainly shows how the passage from the one to the other was effected. This is all the more interesting from the circumstance that both square and round forms are met with in one and the same order, but in different suborders.

Recently my views as to the origin of the amnion and placenta have been criticized by Minot in the *Journal of Morphology*, ii., pp. 432-434. In reply, it may be said that my theory of the amnion has little in common with that of Van Beneden and Julin, which is the reason I did not cite them. My theory of the origin of the amnion, despite my critic, remains the only one which is tenable. In the same way, my theory of the genesis of the girdle-like placenta is equally safe from annihilation at the hands of morphologists. As I entertain a great respect for a vast mass of data which might be cited in proof of my position, I should be doing less than my duty not to insist upon standing by the latter.—J. A. Ryder.

---

## PHYSIOLOGY.<sup>1</sup>

EFFECTS OF STIMULATING NERVE CELLS.—The fact that activity of a gland cell produces in the cell protoplasm changes, which may be recognized by the microscope, has long been known. Not only is the morphological appearance altered, but also the behavior of the cell toward staining reagents. The highly interesting fact that analogous changes accompany the activity of nerve-cells has been discovered by Donaldson and Hodge<sup>2</sup> in the case of the cells of the posterior root ganglia. Korybutt-Daszkiewicz<sup>3</sup> of the Warschau Pathological Laboratory endeavors to advance the subject one step further by showing that the activity of the cells of

<sup>1</sup> This department is edited by Dr. Frederic S. Lee, Bryn Mawr College, Bryn Mawr, Pa.

<sup>2</sup> Cf. *The American Journal of Psychology*, Vol. i, p. 479, 1888.

<sup>3</sup> *Archiv f. mik. Anatomie*, Vol. xxxiii, p. 51, 1889.

the spinal cord affects the staining qualities of the cells. In the frog the sciatic plexuses are laid bare, the nerves are cut, and the central end of the eighth nerve is stimulated at regular intervals for one hour, each stimulation of three minutes being followed by a rest of two minutes. The spinal cord is then removed, hardened, sectioned, and double-stained with hæmatoxylin and safranin. For a control experiment the spinal cord of another frog is, in each case, prepared in exactly the same manner, with the exception of the nerve stimulation. An active and a resting cord are thus obtained for comparison. The nuclei of the cells of the grey matter are colored—some red and some blue-violet. Enumerations give in the control (resting) cord to 1 red, 8.97 blue nuclei; in the stimulated cord to 1 red, 2.71 blue; in the active cord the relative number of red is 3.31 times greater than in the resting one; in parts of the cord lying immediately adjacent to the entrance of the stimulated nerve, the red nuclei are relatively even more abundant. The chemical condition of the nuclei is evidently altered so as to make them more susceptible to the safranin than to the hæmatoxylin. [It is to be regretted that the author apparently enumerates all the cells, even those of the supporting tissue, with the nerve cells.]

**GASEOUS EXCHANGE IN THE LUNGS.**—Professor Bohr, of Copenhagen, has recently carried on a series of experiments, the results of which indicate the incorrectness of the commonly received opinion that the passage of oxygen and carbonic dioxide between the air and the blood in the lungs is a process of simple diffusion.<sup>1</sup> By a modification of Ludwig's stromuhr the blood of the carotid artery of a dog was, in its passage, exposed to the air of a closed chamber until equilibrium had been established between the blood and the air; the latter was then analyzed, and the partial pressures of the gases determined; these partial pressures represent the tensions of the same gases in the blood. The tensions of the gases in the expired air were determined at the same time. In nearly all cases in the blood the carbon dioxide tension was found lower, the oxygen tension higher, than in the expired air. The results would have been still more striking, could the air of the pulmonary alveoli have been used, since there the CO<sub>2</sub> tension is necessarily greater, the O tension less, than in the expired air. The experiments indicate that each gas, in passing through the alveolar and capillary walls passes from a place of low to one of high tension, a fact which

<sup>1</sup> *Centralblatt f. Physiologie*, 1887, p. 293, and 1888, p. 437.

is inexplicable on the hypothesis of diffusion. The author ascribes to the lung tissue a distinct secretory power for both O and CO<sub>2</sub>, a quality which is possessed by the swim-bladder of fishes.

DR. H. P. BOWDITCH'S "Hints for Teachers of Physiology"<sup>1</sup> is an admirable little book, intended for the use of teachers in grammar schools and upward. It contains numerous suggestions of methods by which text-book instruction may be supplemented by "simple observations and experiments on living bodies or on organic material, thus imparting to pupils a knowledge of the foundation on which physiology rests, and, at the same time, bringing the impressions made on the senses to aid the memory in retaining the facts communicated in a purely didactic way." Digestion, circulation, motion, voice, animal heat, respiration, vision, and hearing are treated, but by no means exhaustively, for the author does not attempt a complete treatise on physiology.\* The hints are so excellent that it is a pity that the work is not more full.

---

## PSYCHOLOGY.

MINOT'S REPORT ON DIAGRAM TESTS.—During the past year a large number of postal cards were distributed, each bearing the printed request: "*Please draw ten diagrams on this card, without receiving any suggestion from any other person, and add your name and address.*"

The committee has received for examination 501 postal cards, with diagrams upon them. A few of the cards had more than ten diagrams upon them, and of such cards only the first ten diagrams on each were counted. A few cards had less than ten diagrams.

The cards were divided into three sets; 1, men; 2, women; 3, without names. Each set of cards was numbered, and the diagrams on each card numbered.

Such tests as the diagrams, on which this report is based, demonstrate the slightness of our real individual distinction and separation. The similarity is so great that the same visual images arise in many of us with approximately the same readiness.

We come here to a domain of psychology which has been but little and inadequately studied, namely, the frequency

<sup>1</sup> "Guides for Science Teaching," No. 14, pp. 58, Boston, D. C. Heath & Co., 1889.